**Claims:**

1. A polynucleotide directed towards a gene of a catalytic subunit of human telomerase,
characterized in that
the polynucleotide specifically interacts with the mRNA of the catalytic subunit of human telomerase in at least two target sequence regions, 2176 to 2250 and 2296 to 2393, in accordance with accession number AF015950.

2. The polynucleotide according to claim 1,
characterized in that
the polynucleotide interacts with target sequence regions selected from the group comprising 2183-2205, 2206-2225, 2315-2334, 2317-2336, 2324-2346, 2331-2350 and/or 2333-2352.

3. The polynucleotide according to any of claims 1 and 2,
characterized in that
the sequence region and/or the polynucleotide is modified by addition, amplification, inversion, missense mutation, nonsense mutation, point mutation, deletion and/or substitution.

4. The polynucleotide according to any of claims 1 to 3,
characterized in that
the polynucleotide is immobilized.

5. The polynucleotide according to any of claims 1 to 4,
characterized in that
the polynucleotide is a nucleic acid construct or a derivative thereof.

6. The polynucleotide according to claim 5,
characterized in that
the polynucleotide is fused or complexed with another molecule supporting the directed transport to the target site, the uptake in and/or distribution inside a target cell.

7. The polynucleotide according to claim 5 or 6,
characterized in that
the nucleic acid construct is an antisense oligonucleotide, a DNAzyme, a peptide nucleic acid, a ribozyme and/or an siRNA.

8. The polynucleotide according to claim 7,
characterized in that
the antisense oligonucleotide is modified by phosphothioate bonds and/or other chemical modifications.

9. The polynucleotide according to any of claims 1 to 8,
characterized in that
the sequence region of the hTERT-mRNA, to which the polynucleotide is complementary, is selected from the group comprising 2183-2205, 2206-2225, 2315-2334, 2317-2336, 2324-2346, 2331-2350 and/or 2333-2352.

10. A pharmaceutical composition comprising a polynucleotide according to any of claims 1 to 9 alone or in combination with a pharmaceutically tolerable carrier.

11. A kit comprising a polynucleotide according to any of claims 1 to 9 and/or a pharmaceutical composition according to claim 10.

12. An array comprising a polynucleotide according to any of claims 1 to 9 and/or a pharmaceutical composition according to claim 10.

13. Use of a polynucleotide according to any of claims 1 to 9, a pharmaceutical composition according to claim 10, a kit according to claim 11 and/or an array according to claim 12 in diagnosis, prophylaxis, therapy, follow-up and/or aftercare of diseases associated with cell growth, differentiation and/or division.

14. The use according to the preceding claim,
characterized in that
the disease is a tumor.

15. The use according to the preceding claim,
characterized in that
the tumor is a solid tumor or a leukemia.

16. The use according to the preceding claim,
characterized in that
the solid tumor is a tumor of the urogenital tract and/or gastrointestinal tract.

17. The use according to claim 14,
characterized in that
the tumor is a colon carcinoma, stomach carcinoma, pancreas carcinoma, a small intestine cancer, an ovarian carcinoma, cervical carcinoma, a lung cancer, a renal cell carcinoma, a brain tumor, a head-throat tumor, a liver carcinoma and/or a metastase of the above tumors.

18. The use according to claim 15,
characterized in that
the solid tumor is a mammary, bronchial, colorectal and/or prostate carcinoma and/or a metastase of the above tumors.

19. The use according to claim 16,
characterized in that
the tumor of the urogenital tract is a bladder carcinoma and/or a metastase of said tumor.

20. The use according to claim 13,
characterized in that
the follow-up is monitoring the effectiveness of an anti-tumor treatment.

21. The use according to any of claims 13 to 20,
characterized in that
the polynucleotide is used in a combination therapy.

22. The use according to the preceding claim,
characterized in that
the combination therapy comprises a chemotherapy, a treatment with cytostatic agents and/or a radiotherapy.

23. The use according to the preceding claim,
characterized in that
the combination therapy is an adjuvant biologically specified form of therapy.

24. The use according to the preceding claim,
characterized in that
said form of therapy is an immune therapy.

25. The use according to any of claims 21 to 24,
characterized in that
the combination therapy is a gene therapy and/or a therapy using a polynucleotide against the same or other target molecule.

26. The use according to any of claims 13 to 25 for increasing the sensitivity of tumor cells to cytostatic agents and/or radiation.

27. Use of a polynucleotide according to any of claims 1 to 9 and/or according to any of claims 13 to 26 for inhibiting the vitality, the proliferation rate of cells, for inducing apoptosis and/or cell cycle arrest.